

United States Department of Agriculture Natural Resources Conservation Service

Ecological Site Description

Site Type: Rangeland

Site Name: Saline Lowland (SL) 5-9" Big Horn Basin Precipitation Zone

Site ID: 032XY138WY

Major Land Resource Area: 32 – Northern Intermountain Desertic Basins

Physiographic Features

This site normally occurs on land that receives overflow from intermittent streams or runoff from adjacent slopes.

Landform: alluvial fans, drainage ways & stream terraces

Aspect: N/A

	<u>Minimum</u>	<u>Maximum</u>
Elevation (feet):	3700	6000
Slope (percent):	0	10
Water Table Depth (inches):	>60	30
Flooding:		
Frequency:	None	Occasional
Duration:	None	brief
Ponding:		
Depth (inches):	0	0
Frequency:	None	rare
Duration:	None	brief
Runoff Class:	negligible	low

Climatic Features

Annual precipitation ranges from 5-9 inches per year. The normal precipitation pattern shows peaks in May and June and a secondary peak in September. This amounts to about 50% of the mean annual precipitation. Much of the moisture that falls in the latter part of the summer is lost by evaporation and much of the moisture that falls during the winter is lost by sublimation. Average snowfall is about 20 inches annually. Wide fluctuations may occur in yearly precipitation and result in more dry years than those with more than normal precipitation.

Temperatures show a wide range between summer and winter and between daily maximums and minimums, due to the high elevation and dry air, which permits rapid incoming and outgoing radiation. Cold air outbreaks from Canada in winter move rapidly from northwest to southeast and account for extreme minimum temperatures. Chinook winds may occur in winter and bring rapid rises in temperature. Extreme storms may occur during the winter, but most severely affect ranch operations during late winter and spring.

High winds are generally blocked from the basin by high mountains, but can occur in conjunction with an occasional thunderstorm.

Growth of native cool-season plants begins about April 1 and continues to about July 1. Cool weather and moisture in September may produce some green up of cool season plants that will continue to late October.

The following information is from the “Emblem” climate station:

	<u>Minimum</u>	<u>Maximum</u>	<u>5 yrs. out of 10 between</u>
Frost-free period (days):	98	171	May 13 – September 19
Freeze-free period (days):	120	184	May 1 – October 5
Mean Annual Precipitation (inches):	3.22	10.97	

Mean annual precipitation: 7.42 inches

Mean annual air temperature: 45.01°F (31.2°F Avg. Min. to 58.7°F Avg. Max.)

For detailed information visit the Natural Resources Conservation Service National Water and Climate Center at <http://www.wcc.nrcs.usda.gov/> website. Other climate station(s) representative of this precipitation zone include “Basin”, “Deaver”, “Lovell”, and “Worland”.

Influencing Water Features

Wetland Description:	<u>System</u>	<u>Subsystem</u>	<u>Class</u>	<u>Sub-class</u>
None	None	None	None	None

Stream Type: None

Representative Soil Features

The soils of this site are moderately deep and very deep well-drained soils formed in alluvium. These soils have moderate to rapid permeability and are moderately to strongly saline and/or alkaline. Higher soluble salt concentrations may be found in the subsoils. The surface soil will be highly variable and vary from 2 to 8 inches in thickness. A fluctuating water table occurs in these areas and ranges from 2.5 to 5 feet. These areas are subject to occasional overflow. The soil characteristics having the most influence on the plant community are depth to a water table during the growing season, occasional overflow or flooding during the growing season, and the elevated quantities of soluble salts.

Major Soil Series correlated to this site include: Binton

Other Soil Series correlated in MLRA 32 to this site include:

Parent Material Kind: alluvium

Parent Material Origin: sandstone, shale

Surface Texture: loam, clay loam, silt loam, clay, silty clay, silty clay loam

Surface Texture Modifier: none

Subsurface Texture Group: loam, silty clay loam, clay loam, clay, sandy loam, sandy clay loam

Surface Fragments ≤ 3” (% Cover): 0

Surface Fragments > 3” (%Cover): 0

Subsurface Fragments ≤ 3” (% Volume): 0

Subsurface Fragments > 3” (% Volume): 0

Drainage Class:	<u>Minimum</u>	<u>Maximum</u>
Permeability Class:	some what poorly moderate	excessively well rapid

Site Type: Rangeland
MLRA: 32 – Northern Intermountain Desertic Basins

Saline Lowland (SL) BH
R032XY138WY

Depth (inches):	20	>60
Electrical Conductivity (mmhos/cm) $\leq 20''$:	4	16
Sodium Absorption Ratio $\leq 20''$:	8	>16
Soil Reaction (1:1 Water) $\leq 20''$:	8.4	9.6
Soil Reaction (0.1M CaCl₂) $\leq 20''$:	NA	NA
Available Water Capacity (inches) $\leq 30''$:	1	6.2
Calcium Carbonate Equivalent (percent) $\leq 20''$:	0	15

Plant Communities

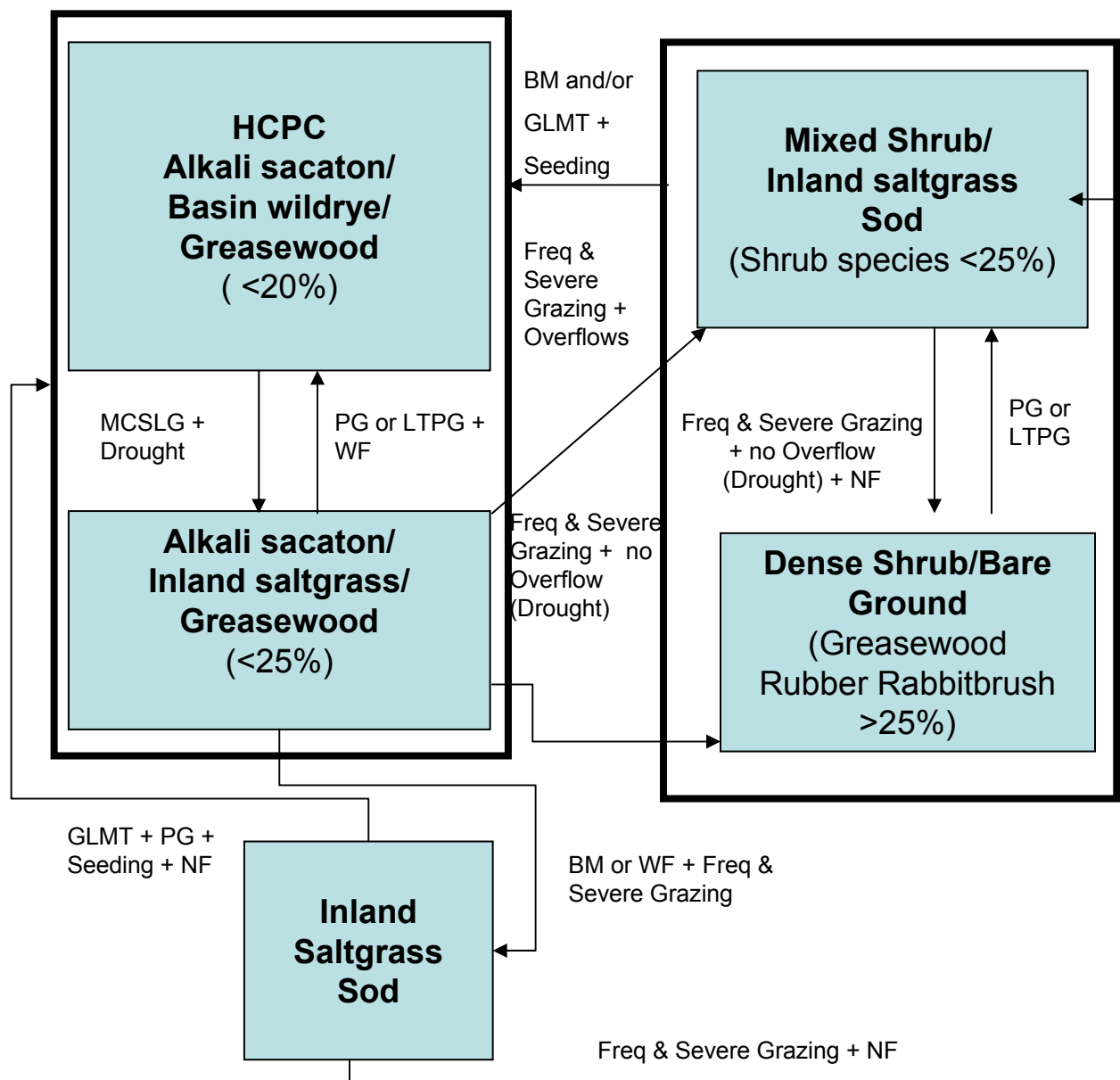
Ecological Dynamics of the Site:

Potential vegetation on this site is dominated by tall and mid perennial grasses, which can tolerate soils with moderate amounts of salinity and alkalinity. These grasses are also adapted to periodic overflows and a water table near the surface for a portion of the growing season. Other significant vegetation includes greasewood, rubber rabbitbrush and a variety of forbs. The expected potential composition for this site is about 70% grasses, 10% forbs and 20% woody plants. The composition and production will vary naturally due to historical use, fluctuating precipitation and fire frequency.

As this site deteriorates, species such as inland saltgrass and greasewood increase. Weedy annuals will invade. Grasses such as alkali sacaton, basin wildrye, and rhizomatous wheatgrasses will decrease in frequency and production.

The Historic Climax Plant Community (description follows the plant community diagram) has been determined by study of rangeland relic areas, or areas protected from excessive disturbance. Trends in plant communities going from heavily grazed areas to lightly grazed areas, seasonal use pastures, and historical accounts have also been used.

The following is a State and Transition Model Diagram that illustrates the common plant communities (states) that can occur on the site and the transitions between these communities. The ecological processes will be discussed in more detail in the plant community narratives following the diagram.



BM - Brush Management (fire, chemical, mechanical)

Freq. & Severe Grazing - Frequent and Severe Utilization of the Cool-season Mid-grasses during the Growing Season

GLMT - Grazing Land Mechanical Treatment

LTPG - Long-term Prescribed Grazing

MCSLG - Moderate, Continuous Season-long Grazing

NU, NF - No Use and No Fire

PG - Prescribed Grazing (proper stocking rates with adequate recovery periods during the growing season)

VLTPG - Very Long-term Prescribed Grazing (could possibly take generations)

WF - Wildfire

Plant Community Composition and Group Annual Production
Reference Plant Community (HCPC)

COMMON NAME/GROUP NAME	SCIENTIFIC NAME	SYMBOL	Annual Production (Normal Year)		
			Total: 1200		
			Group	lbs./acre	% Comp.
GRASSES AND GRASS-LIKES					
GRASSES/GRASSLIKES					
Alkali sacaton	Sporobolus airoides	SPAI	1	180 - 300	15 - 25
Basin wildrye	Leymus cinereus	LECI4	2	120 - 300	10 - 25
Western wheatgrass	Pascopyrum smithii	PASM	3	120 - 300	10 - 25
MISC. GRASSES/GRASSLIKES			4	0 - 180	0 - 15
Blue grama	Bouteloua gracilis	BOGR2	4	0 - 60	0 - 5
Bottlebrush squirreltail	Elymus elymoides	ELELE	4	0 - 60	0 - 5
Canada wildrye	Elymus canadensis	ELCA4	4	0 - 60	0 - 5
Indian ricegrass	Achnatherum hymenoides	ACHY	4	0 - 60	0 - 5
Inland saltgrass	Distichlis spicata	DISP	4	0 - 60	0 - 5
Mat muhly	Muhlenbergia richardsonis	MURI	4	0 - 60	0 - 5
Sandberg bluegrass	Poa secunda	POSE	4	0 - 60	0 - 5
other perennial grasses (native)		2GP	4	0 - 60	0 - 5
FORBS			5	0 - 120	0 - 10
Phlox	Phlox spp.	PHLOX	5	0 - 60	0 - 5
Wild onion	Allium textile	ALTE	5	0 - 60	0 - 5
Woody Aster	Xylorhiza spp.	XYLOR	5	0 - 60	0 - 5
other perennial forbs (native)		2FP	5	0 - 60	0 - 5
TREES/SHRUBS					
Greasewood	Sarcobatus vermiculatus	SAVE4	6	120 - 240	10 - 20
Rubber rabbitbrush	Ericameria nauseosa	ERNA10	7	0 - 60	0 - 5
Shadscale	Atriplex confertifolia	ATCO	8	0 - 60	0 - 5
other shrubs & half shrubs (native)		2SHRUB	9	0 - 60	0 - 5

This list of plants and their relative proportions are based on near normal years. Fluctuations in species composition and relative production may change from year to year dependent upon precipitation or other climatic factors.

Plant Community Narratives

Following are the narratives for each of the described plant communities. These plant communities may not represent every possibility, but they probably are the most prevalent and repeatable plant communities. The plant composition tables shown above have been developed from the best available knowledge at the time of this revision. As more data is collected, some of these plant communities may be revised or removed, and new ones may be added. None of these plant communities should necessarily be thought of as “Desired Plant Communities”. According to the USDA NRCS National Range and Pasture Handbook, Desired Plant Communities (DPC's) will be determined by the decision-makers and will meet minimum quality criteria established by the NRCS. The main purpose for including any description of a plant community here is to capture the current knowledge and experience at the time of this revision.

Alkali Sacaton/Basin Wildrye/Greasewood Plant Community

The interpretive plant community for this site is the Historic Climax Plant Community. This state evolved with grazing by large herbivores, periodic fires, supplemental moisture, and saline and/or alkali soils. Potential vegetation is about 70% grasses or grass-like plants, 10% forbs and 20% woody plants. Saline tolerant grasses dominate the state. The major grasses include alkali sacaton, basin wildrye, rhizomatous wheatgrasses, and bottlebrush squirreltail. Woody plants are greasewood and rubber rabbitbrush. A variety of forbs also occurs in this state and plant diversity is high (see Plant Composition Table).

The total annual production (air-dry weight) of this state is about 1200 pounds per acre, but it can range from about 700 lbs. /acre in unfavorable years to about 1600 lbs. /acre in above average years.

The following is the growth curve of this plant community expected during a normal year:

Growth curve number: WYO502

Growth curve name: 5-9BH, EXTRA WATER SITES

Growth curve description: LL, OV, CYO, SL SITES

JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC
0	0	0	5	35	30	10	5	10	5	0	0

(Monthly percentages of total annual growth)

This state is stable and well adapted to the Northern Intermountain Desertic Basins climatic conditions. The diversity in plant species allows for high drought resistance. This is a sustainable plant community (site/soil stability, watershed function, and biologic integrity).

Transitions or pathways leading to other plant communities are as follows:

- Moderate, continuous season-long grazing will convert this plant community to the *Alkali Sacaton/Inland Saltgrass/Greasewood Plant Community*. Prolonged drought will exacerbate this transition.

Alkali Sacaton/Inland Saltgrass/Greasewood Plant Community

Historically, this plant community evolved under moderate grazing by large ungulates and low fire frequency. Currently, this site is normally found under a moderate, season-long grazing regime and in the absence of fire or brush control. Prolonged drought can also play an important role and will exacerbate these conditions. Saline and flood tolerant perennial plants make up the dominant species in this plant community.

Dominant grasses include alkali sacaton, inland saltgrass, rhizomatous wheatgrasses, blue grama, and mat muhly. Forbs commonly found in this plant community include wild onion, pursue seepweed,

smooth goldaster, and povertyweed. Greasewood and rubber rabbitbrush comprises the majority of the woody species and make up less than 25% of the annual production.

When compared to the Historical Climax Plant Community, basin wildrye and rhizomatous wheatgrasses have decreased. Annual weedy plants have increased, but occur in small patches. Inland saltgrass, greasewood, and rubber rabbitbrush have increased.

The total annual production (air-dry weight) of this state is about 880 pounds per acre, but it can range from about 500 lbs. /acre in unfavorable years to about 1100 lbs. /acre in above average years.

The following is the growth curve expected during a normal year:

Growth curve number: WYO502

Growth curve name: 5-9BH, EXTRA WATER SITES

Growth curve description: LL, OV, CYO, SL SITES

JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC
0	0	0	5	35	30	10	5	10	5	0	0

(Monthly percentages of total annual growth)

This state is stable and protected from excessive erosion. The herbaceous component is mostly intact and plant vigor and replacement capabilities are sufficient. Only minimal occurrences of water flow patterns and litter movement is evident. Incidence of pedestalling is minimal. Soils are mostly stable and the surface shows minimum soil loss. The watershed is functioning and the biotic community is intact.

Transitional pathways leading to other plant communities are as follows:

- Prescribed grazing or possibly long-term prescribed grazing will result in a plant community very similar to the *Historic Climax Plant Community*, except that greasewood will persist without a return to a normal fire regime or some form of brush control.
- Frequent and severe grazing with brush management or wildfire will convert this plant community to the *Inland Saltgrass Sod Plant Community*.
- Frequent and severe grazing with the occasional overflow and no fire will convert this plant community to the *Mixed Shrub/Inland Saltgrass Sod Plant Community*.
- Frequent and severe grazing with no overflow and no fire will convert this plant community to the *Dense Shrub/Bare Ground Plant Community*. Prolonged drought will exacerbate this transition.

Mixed Shrub/Inland Saltgrass Sod Plant Community

This plant community is the result of frequent and severe grazing with periodic overflows and no fire or brush control. This plant community is dominated by a dense short grass sod and includes a mosaic shrub overstory. Greasewood and rubber rabbitbrush are the primary overstory species in this plant community. Shrubs comprise less than 25% of the annual production.

The dominant grasses are inland saltgrass, mat muhly, and blue grama. Noxious weeds such as Russian knapweed, leafy spurge, or Canada thistle may invade the site. Plant diversity is moderate to poor.

When compared to the Historic Climax Plant Community, the tall and medium grasses are absent. Short warm season grasses are dominant and weedy annuals are common. Shrubs will have increased as a percentage of the total production, but will not dominate as the sod prevents a homogeneous shrub cover. Noxious weeds, such as Russian knapweed, are present if a seed source is available. Areas of bare ground may have increased in patches and total production has decreased.

The total annual production (air-dry weight) of this state is about 480 pounds per acre, but it can range from about 300 lbs. /acre in unfavorable years to about 600 lbs. /acre in above average years.

The following is the growth curve expected during a normal year:

Growth curve number: WYO502

Growth curve name: 5-9BH, EXTRA WATER SITES

Growth curve description: LL, OV, CYO, SL SITES

JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC
0	0	0	5	35	30	10	5	10	5	0	0

(Monthly percentages of total annual growth)

The sod component of this plant community is extremely resistant to change and continued frequent and severe grazing or the removal of grazing does not seem to affect the plant composition or structure of the plant community. The biotic integrity of this state is mostly not functional as plant diversity is poor, especially the herbaceous species. However, the vegetative structure may still be partially intact as the shrub component is still within a reasonable percentage of the total composition.

This sod bound plant community is very resistant to water infiltration. While this sod protects the site itself, excessive runoff increases erosion on bare ground and can cause rills, channels and gully erosion. Water flow patterns are obvious in the bare ground areas and shrubs and sod patches are pedestalled. Rill channels are noticeable in the interspaces and gullies may be establishing where rills have concentrated. The watershed may or may not be functioning, as runoff is excessive and erosional processes are accelerated.

Transitional pathways leading to other plant communities are as follows:

- Grazing land mechanical treatment (chiseling, etc.) and brush management followed by prescribed grazing and, if necessary, seeding will return this plant community to near *Historic Climax Plant Community*.
- Frequent and severe grazing with no overflow and no fire will convert this plant community to the *Dense Shrub/Bare Ground Sod Plant Community*. Prolonged drought will exacerbate this transition.

Dense Shrub/Bare Ground Plant Community

This plant community evolved under frequent and severe grazing with the absence of fire and an interruption in overflow or an extended period of drought. Greasewood and rubber rabbitbrush are the dominant species of this plant community. Tall and medium grasses have been eliminated. The interspaces between shrubs have expanded leaving the amount of bare ground more prevalent and more soil surface exposed to erosive elements.

The annual grasses and forbs, such as cheatgrass, foxtail barley, kochia, halogeton, and Russian thistle make up the dominant understory along with noxious weeds such as Russian knapweed. Total

annual production is mostly from shrubs and these weedy annuals. Shrubs make up greater than 25% of the total annual production. When compared with the Mixed Shrub/Inland Saltgrass Sod Plant Community, the annual production is similar as the shrub production compensates for the decline in the herbaceous production.

The total annual production (air-dry weight) of this state is about 450 pounds per acre, but it can range from about 350 lbs. /acre in unfavorable years to about 600 lbs. /acre in above average years.

The following is the growth curve expected during a normal year:

Growth curve number: WYO502

Growth curve name: 5-9BH, EXTRA WATER SITES

Growth curve description: LL, OV, CYO, SL SITES

JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC
0	0	0	5	35	30	10	5	10	5	0	0

(Monthly percentages of total annual growth)

This plant community is resistant to change as the stand becomes more decadent. These areas may actually be more resistant to fire as less fine fuels are available and the bare ground between the shrubs has increased. Continued frequent and severe grazing or the removal of grazing does not seem to affect the plant composition or structure of the plant community. Annual grasses, weedy species and bare ground compromise the biotic integrity. Plant diversity is poor and the potential for native grasses to reproduce is absent. The shift in the vegetative structure and function is extreme and the biotic integrity is lost.

The soil of this state is not well protected as erosion has accelerated because of increased bare ground. Water flow patterns and pedestalling are obvious. Infiltration is reduced and runoff has increased. Rill channels may be noticeable in the interspaces and gullies may be establishing where rills have concentrated.

Transitional pathways leading to other plant communities are as follows:

- Brush management, followed by prescribed grazing and seeding if necessary, will return this plant community at or near *HCPC*. If prescribed fire is used as a means to reduce or remove the shrubs, sufficient fine fuels will need to be present. This may require deferment from grazing prior to treatment. Since both greasewood and rubber rabbitbrush are difficult to remove or control, repeated treatments or a combination of treatments may be necessary. Post management is critical to ensure success. This can range from two or more years of rest to partial growing season deferment, depending on the condition of the understory at the time of treatment and the growing conditions following treatment. In the case of an intense wildfire that occurs when desirable plants are not completely dormant, the length of time required to reach the *HCPC* may be increased and seeding of natives is recommended.
- Prescribed grazing or possibly long-term prescribed grazing will return this plant community *Mixed Shrub/Inland Saltgrass Plant Community*.

Inland Saltgrass Sod Plant Community

This plant community is the result of long-term improper grazing use plus fire or some form of brush management. This state is dominated by inland saltgrass sod. Intermittent areas of bare ground have increased and extend between the patches of sod.

When compared to the Historic Climax Plant Community, the tall and medium grasses are absent. Short warm season grasses are dominant and weedy annuals are common. Noxious weeds, such as Russian knapweed, are present if a seed source is available.

The total annual production (air-dry weight) of this state is about 280 pounds per acre, but it can range from about 100 lbs. /acre in unfavorable years to about 350 lbs. /acre in above average years.

The following is the growth curve expected during a normal year:

Growth curve number: WYO502

Growth curve name: 5-9BH, EXTRA WATER SITES

Growth curve description: LL, OV, CYO, SL SITES

JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC
0	0	0	5	35	30	10	5	10	5	0	0

(Monthly percentages of total annual growth)

This sod is extremely resistant to change and continued frequent and severe grazing or the removal of grazing does not seem to affect the plant composition or structure of the plant community. The biotic integrity of this state is not functional and plant diversity is extremely low.

This sod bound plant community is very resistant to water infiltration. While this sod protects the site itself, excessive runoff increases erosion on bare ground areas and can cause rill channels and gully erosion. Water flow patterns are obvious in the bare ground areas and pedestalling is apparent along the sod edges. Rill channels are noticeable in the interspaces and gullies may be establishing where rills have concentrated. The watershed is not normally functioning, as runoff is excessive and erosional processes are accelerated.

Transitional pathways leading to other plant communities are as follows:

- Grazing land mechanical treatment (chiseling, etc.) followed by prescribed grazing and reseeding native species, will return this plant community to near *Historic Climax Plant Community* condition.
- Frequent and severe grazing with the occasional overflows and no fire will convert this state to the *Mixed Shrub/Inland Saltgrass Sod Plant Community*.

Ecological Site Interpretations

Animal Community – Wildlife Interpretations

Historic Climax Plant Community: The predominance of grasses in this plant community favors grazers and mixed-feeders, such as bison, deer, and antelope. Suitable thermal and escape cover for wildlife is available as quantities of woody plants are adequate. In addition, topographical variations provide some escape cover as well. When found adjacent to sagebrush dominated states, this plant community may provide brood rearing/foraging areas for sage grouse, as well as lek sites. Other birds that would frequent this plant community include western meadowlarks, horned larks, and golden eagles as well as upland game birds. Many grassland obligate small mammals would occur here.

Alkali Sacaton/Inland Saltgrass/Greasewood Plant Community: This plant community exhibits a moderate level of plant species diversity due to the accumulation of salts in the soil. It provides both thermal and escape cover for deer and antelope especially if other woody communities are nearby. Other birds that would frequent this plant community include western meadowlarks, horned larks, and golden eagles as well as upland game birds. Many grassland obligate small mammals would occur here.

Mixed Shrub/Inland Saltgrass Sod Plant Community: These communities provide some foraging and cover for deer, antelope, and other large ungulates. This plant community, especially if proximal to other woody cover, may be used by sage grouse and other game birds for foraging and cover.

Dense Shrub/Bare Ground Plant Community: This plant community can provide important winter foraging and cover for mule deer and antelope during that time. The plant community composition comprises little diversity, and thus, is less apt to meet the seasonal needs of large grazers. It may provide some foraging opportunities and cover for sage grouse, pheasant, and partridge.

Inland Saltgrass Sod Plant Community: This plant community may be used by the same large grazers that would use the Historic Climax Plant Community. However, the plant community composition is less diverse and productive, thus, is less apt to meet the seasonal needs of these animals. It may provide some foraging opportunities for sage grouse when it occurs proximal to woody cover.

Animal Preferences (Quarterly - 1,2,3,4) for commonly occuring plants in MLRA 32, 5-9 inch Bighorn Basin

COMMON NAME/ GROUP NAME	SCIENTIFIC NAME	SCIENTIFIC SYMBOL	Cattle	Sheep	Horses	Deer	Antelope
GRASSES/GRASSLIKES							
Alkali bluegrass	Poa juncifolia (syn. P. secunda)	POJU (POSE)	DDDD	PPPP	DDDD	PPPP	PPPP
Alkali cordgrass	Spartina gracilis	SPGR	DDDD	UUUU	DDDD	UUUU	UUUU
Alkali sacaton	Sporobolus airoides	SPA1	PPPP	DDDD	PPPP	DDDD	DDDD
Baltic rush	Juncus balticus	JUBA	DDDD	UUUU	DDDD	UUUU	UUUU
Basin wildrye	Leymus cinereus	LECI4	PPPP	PPPP	PPPP	DDDD	DDDD
Beaked sedge	Carex rostrata	CAR06	DDDD	UUUU	DDDD	UUUU	UUUU
Blue grama	Bouteloua gracilis	BOGR2	DDDD	DDDD	DDDD	DDDD	DDDD
Bluebunch wheatgrass	Pseudoroegneria spicata	PSSP6	PPPP	PPPP	PPPP	DDDD	DDDD
Bottlebrush squiiretail	Elymus elymoides	ELEL5	DDDD	DDDD	DDDD	UUUU	DDDD
Canada wildrye	Elymus canadensis	ELCA4	PPPP	PPPP	PPPP	DDDD	DDDD
Golden sedge	Carex aurea	CAAU3	DDDD	DDDD	DDDD	UUUU	UUUU
Indian ricegrass	Achnatherum hymenoides	ACHY	PPPP	PPPP	PPPP	PPPP	PPPP
Inland saltgrass	Distichlis spicata	DISP	UUUU	UUUU	UUUU	UUUU	UUUU
Inland sedge	Carex interior	CAIN11	DDDD	DDDD	DDDD	UUUU	UUUU
Nebraska sedge	Carex nebrascensis	CANE2	PPPP	PPPP	PPPP	DDDD	DDDD
Needleandthread	Hesperostipa comata	HECO26	PPPP	PPPP	PPPP	PPPP	PPPP
Nuttall's alkaligrass	Puccinellia nuttalliana	PUNU2	PPPP	PPPP	PPPP	PPPP	PPPP
Prairie junegrass	Koeleria macrantha	KOMA	DDDD	DDDD	DDDD	DDDD	DDDD
Prairie sandreed	Calamovilfa longifolia	CALO	PPPP	UUUU	PPPP	UUUU	UUUU
Red threeawn	Aristida purpurea	ARPUL	UUUU	UUUU	UUUU	UUUU	UUUU
Sand dropseed	Sporobolus cryptandrus	SPCR	DDDD	DDDD	DDDD	UUUU	UUUU
Sandberg bluegrass	Poa secunda	POSE	DDDD	DDDD	DDDD	DDDD	DDDD
Slender wheatgrass	Elymus trachycalyx	ELTR7	PPPP	DDDD	PPPP	DDDD	DDDD
Streambank wheatgrass	Elymus lanceolatus	ELLA3	DDDD	DDDD	DDDD	DDDD	DDDD
Thickspike wheatgrass	Elymus lanceolatus ssp. lanceolatus	ELLAL	DDDD	DDDD	DDDD	DDDD	DDDD
Threadleaf sedge	Carex filifolia	CAFI	DDDD	DDDD	DDDD	DDDD	DDDD
Threeawns	Aristida spp.	ARIST	UUUU	UUUU	UUUU	UUUU	UUUU
Tufted hairgrass	Deschampsia caespitosa	DECA18	PPPP	PPPP	PPPP	DDDD	DDDD
Upland sedge	Carex spp.	CAREX	DDDD	DDDD	DDDD	DDDD	DDDD
Water sedge	Carex aquatilis	CAAQ	DDDD	UUUU	DDDD	UUUU	UUUU
Western wheatgrass	Pascopyrum smithii	PASM	DDDD	DDDD	DDDD	DDDD	DDDD
FORBS							
Alkali seepweed	Suaeda spp.	AGOSE	UUUU	UUUU	UUUU	UUUU	UUUU
Arrowgrass	Triglochin spp.	TRIGL	TTTT	TTTT	TTTT	TTTT	TTTT
Asters	Eucephalus spp.	EUCEP2	UUUU	UUUU	UUUU	UUUU	UUUU
Biscuitroot	Lomatium spp.	LOMAT	DDDD	DDDD	UUUU	DDDD	DDDD
Blue-eyed grass	Sisyrinchium spp.	SISYR	UUUU	UUUU	UUUU	UUUU	UUUU
Buckwheats	Eriogonum spp.	ERIOG	UUUU	DDDD	UUUU	UUUU	UUUU
Dock	Rumex spp.	RUMEX	UUUU	UUUU	UUUU	UUUU	UUUU
Evening primrose	Oenothera caespitosa	OECA10	UUUU	UUUU	UUUU	UUUU	UUUU
False carrot	Turgenia spp.	TURGE	UUUU	DDDD	UUUU	UUUU	UUUU
Fleabanes	Erigeron spp.	ERIGE2	DDDD	DDDD	DDDD	DDDD	DDDD
Horsetails	Equisetum spp.	EQUIS	UUUU	UUUU	TTTT	UUUU	UUUU
Iris	Iris spp.	IRIS	UUUU	UUUU	UUUU	UUUU	UUUU
Larkspur (poisonous in spring before flowering)	Delphinium spp.	DELPH	DDDD	DDDD	DDDD	DDDD	DDDD
Milkvetch	Astragalus spp.	ASTRA	DDDD	DDDD	DDDD	DDDD	DDDD
Nailwort	Paronychia spp.	PARON	UUUU	UUUU	UUUU	UUUU	UUUU
Paintbrush	Castilleja spp.	CAST	DDDD	DDDD	DDDD	DDDD	DDDD
Penstemons	Penstemon spp.	PENST	PPPP	PPPP	PPPP	PPPP	PPPP
Phlox	Phlox spp.	PHLOX	UUUU	UUUU	UUUU	UUUU	UUUU
Princesplume	Stanleya spp.	STANL	TTTT	TTTT	TTTT	TTTT	TTTT
Pussytoes	Antennaria spp.	ANTEN	UUUU	UUUU	UUUU	UUUU	UUUU
Salsify	Tragopogon porrifolius	TRPO	UUUU	UUUU	UUUU	UUUU	UUUU
Scarlet globemallow	Sphaeralcea coccinea	SPCO	DDDD	DDDD	DDDD	DDDD	DDDD
Stemless hymenoxys	Tetranneuris acaulis	TEACA2	UUUU	UUUU	UUUU	UUUU	UUUU
Stonecrop	Sedum spp.	SEDUM	UUUU	UUUU	UUUU	UUUU	UUUU
Toadflax	Comandra umbellata	COUMP	UUUU	UUUU	UUUU	UUUU	UUUU
Wild onion	Allium textile	ALTE	DDDD	DDDD	DDDD	DDDD	DDDD
Woody aster	Xylorhiza spp.	XYLOR	TTTT	TTTT	TTTT	TTTT	TTTT
TREES, SHRUBS & HALF-SHRUBS							
Big sagebrush	Artemisia tridentata	ARTR2	DDDD	DDDD	UUUU	DDDD	DDDD
Birdfoot sagebrush	Artemisia pedatifida	ARPE6	UUUU	UUUU	UUUU	UUUU	UUUU
Black sagebrush	Artemisia nova	ARNO4	UUUU	PPPP	UUUU	PPPP	PPPP
Bud sagebrush	Picrothamnus desertorum	PIDE4	PPPP	PPPP	DDDD	PPPP	PPPP
Cottonwoods (sprouts)	Populus spp.	POPUL	PPPP	PPPP	PPPP	PPPP	UUUU
Fourwing saltbush	Atriplex canescens	ATCA2	PPPP	PPPP	PPPP	PPPP	PPPP
Gardners saltbush	Atriplex gardneri	ATGA	PPPP	PPPP	DDDD	PPPP	PPPP
Greasewood (toxic in large amounts)	Sarcobatus vermiculatus	SAVE4	DDDD	DDDD	UUUU	DDDD	DDDD
Junipers	Juniperus scopulorum	JUSC2	UUUU	UUUU	UUUU	DDDD	UUUU
Green rabbitbrush	Chrysothamnus viscidiflorus	CHV18	DDDD	DDDD	UUUU	PPPP	PPPP
Rubber rabbitbrush	Ericameria nauseosa	ERNA10	UUUU	PPPP	UUUU	DDDD	PPPP
Shadscale	Atriplex confertifolia	ATCO	UUUU	UUUU	UUUU	UUUU	UUUU
Silver buffaloberry	Shepherdia argentea	SHAR	UUUU	UUUU	UUUU	UUUU	UUUU
Silver sagebrush	Artemisia cana	ARCA13	DDDD	DDDD	DDDD	PPPP	PPPP
Skunkbush sumac	Rhus trilobata	RHTR	DDDD	DDDD	UUUU	DDDD	DDDD
Spiny hopsage	Grayia spinesa	GRSP	UUUU	UUUU	UUUU	UUUU	UUUU
Wildrose	Rosa woodsii var. woodsii	ROWOW	DDDD	DDDD	UUUU	DDDD	DDDD
Willows	Salix spp.	SALIX	PPPP	PPPP	DDDD	PPPP	UUUU
Winterfat	Krascheninnikovia lanata	KRAL2	PPPP	PPPP	PPPP	PPPP	PPPP
Yucca	Yucca spp.	YUCCA	DDDD	DDDD	UUUU	DDDD	DDDD

N = not used; U = undesirable; D = desirable; P = preferred; T = toxic

Animal Community – Grazing Interpretations

The following table lists suggested stocking rates for cattle under continuous season-long grazing under normal growing conditions. These are conservative estimates that should be used only as guidelines in the initial stages of the conservation planning process. Often, the current plant composition does not entirely match any particular plant community (as described in this ecological site description). Because of this, a field visit is recommended, in all cases, to document plant composition and production. More precise carrying capacity estimates should eventually be calculated using this information along with animal preference data, particularly when grazers other than cattle are involved. Under more intensive grazing management, improved harvest efficiencies can result in an increased carrying capacity. If distribution problems occur, stocking rates must be reduced to maintain plant health and vigor.

Plant Community	Production (lb. /ac)	Carrying Capacity* (AUM/ac)
Historic Climax Plant Community	700-1600	.30
Alkali sacaton/Inland saltgrass/Greasewood	500-1100	.22
Mixed Shrub/Inland Saltgrass Sod	300-600	.12
Dense Shrub/Bare Ground	350-600	.07
Inland Saltgrass Sod	100-350	.07

* - Continuous, season-long grazing by cattle under average growing conditions.

Grazing by domestic livestock is one of the major income-producing industries in the area. Rangeland in this area may provide yearlong forage for cattle, sheep, or horses. During the dormant period the forage for livestock use needs to be supplemented with protein because the quality does not meet minimum livestock requirements.

Hydrology Functions

Water is the principal factor limiting forage production on this site. This site is dominated by soils in hydrologic group B and C, with localized areas in hydrologic group D. Infiltration ranges from moderate to rapid. Runoff potential for this site varies from moderate to high depending on soil hydrologic group and ground cover. In many cases, areas with greater than 75% ground cover have the greatest potential for high infiltration and lower runoff. An example of an exception would be where short-grasses form or a strong sod dominates the site. Areas where ground cover is less than 50% have the greatest potential to have reduced infiltration and higher runoff (refer to Part 630, NRCS National Engineering Handbook for detailed hydrology information).

Rills and gullies should not typically be present. Water flow patterns should be barely distinguishable if at all present. Pedestals are only slightly present in association with bunchgrasses. Litter typically falls in place, and signs of movement are not common. Chemical and physical crusts may be present. Cryptogamic crusts are present, but only cover 1-2% of the soil surface.

Recreational Uses

This site provides hunting opportunities for upland game species and big game such as deer and antelope. The wide varieties of plants which bloom from spring until fall have an esthetic value that appeals to visitors.

Wood Products

No appreciable wood products are present on the site.

Other Products

None noted.

Supporting Information

Associated Sites

Saline Subirrigated	032XY142WY
Lowland	032XY128WY
Clayey	032XY104WY

Similar Sites

() – Saline Lowland 10-14" Foothills and Basins East P.Z., 032XY338WY has higher production.

Inventory Data References (narrative)

Information presented here has been derived from NRCS inventory data. Field observations from range trained personnel were also used. Other sources used as references include: USDA NRCS Water and Climate Center, USDA NRCS National Range and Pasture Handbook, and USDA NRCS Soil Surveys from various counties.

Inventory Data References

<u>Data Source</u>	<u>Number of Records</u>	<u>Sample Period</u>	<u>State</u>	<u>County</u>
SCS-RANGE-417	19	1965-1986	WY	Park & others

State Correlation

This site occurs entirely within Wyoming.

Type Locality

Field Offices

Cody, Greybull, Lovell, Powell, Thermopolis, Worland

Relationship to Other Established Classifications

Other References

Site Description Approval

State Range Management Specialist

Date